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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,340	07/26/2001	Hiroyuki Sugiyama	35.C15615	5667

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NEW YORK, NY 10112

EXAMINER

TUGBANG, ANTHONY D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 09/17/2003

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/912,340

Applicant(s)

SUGIYAMA ET AL.

Examiner

A. Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 and 16-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The applicants' amendment filed 7/3/03 (Paper No. 9) has been fully considered and made of record.

Election/Restrictions

2. This application contains Claims 1-10 and 16-18 drawn to an invention nonelected with traverse in Paper No. 8. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: A Method of Manufacturing a Liquid Discharge Head.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claims 11-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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In Claim 11, it is unclear from the disclosure what is meant by the phrase of “being plate-like” (line 15). With particular emphasis on the term of “-like”, it is unclear whether this is used to describe a particular shape, material, etc., of the movable member, which renders the claims as being vague and indefinite.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Weber 5,838,351.

Weber discloses a method of manufacturing a liquid-discharge head comprising: forming a movable member (see sequence of Figs. 7A-7F) of polyimide layer 172, heating element layer 144 and polyimide layer 176, on a device substrate (bottom layer in Fig. 7A) by a photolithographic technique utilizing photoresists (see col. 7, lines 20-23); removing a right-angled part (portion of heating element layer 144 in Figs. 7C and 7D) and an acute-angled part (portion of either one of polyimide layers 172 or 176 in Figs. 7D) of an edge (free end 136) of the movable member.

Regarding Claim 12, Weber shows forming a curved surface (area pointed to by element 144 in Fig. 7C) on the edge 136.

Regarding Claim 13, the edge of the movable member of Weber is made chamfered by the fact that Weber forms a groove or bevel in polyimide layer 172 to form the edge (free end 136, see sequence of Figs. 7A-7B).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weber in view of Welbourn et al 5,262,000.

Weber teaches the claimed manufacturing method as previously discussed, further including that the movable member is formed by etching utilizing a sacrificial layer 164. Weber does not appear to mention that movable member is soaked in an etching solution.

Welbourn suggests the use of a sacrificial layer S2 (in Fig. 1) to form a cantilevered movable member S3 in which removal of the sacrificial layer involves a wet etching process (see col. 4, lines 10-12). It is noted that a "wet etching process" would inherently involve a liquid, i.e. an etching solution, to soak the movable member to the extent that the sacrificial layer S2 would be removed.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Weber by using the etching solution of Welbourn, to form equivalent structured cantilevered movable members.

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10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weber in view of European Patent EP 0 737 582, referred to hereinafter as EP'582.

Weber discloses the claimed manufacturing method as previously discussed. Weber does not teach that the movable member is formed by radiating a laser light.

EP'582 teaches the concept of forming a movable member 6 (in Fig. 5) by irradiating laser light (see page 12, lines 5-15) to pattern the movable member into a particular shape.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the movable member of Weber by utilizing laser light, as taught by EP'582, to positively pattern and shape the movable member.

Response to Arguments

11. Applicant's arguments with respect to claims 11-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

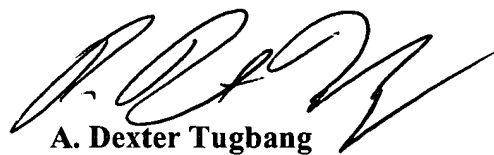
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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.



A. Dexter Tugbang
Primary Examiner
Art Unit 3729

September 15, 2003